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PATENT  
Docket No. C 2064 PCT/US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re: Application of  
Weuthen, et al.

Serial No. 10/088,260

Examiner: Necholus Ogden, Jr.

Filed: 06/25/2002

Art Unit: 1751

TITLE: DETERGENT TABLETS

CERTIFICATE OF MAILING

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Rose A. Stowe

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RESPONSE TO EXAMINER'S ANSWER

Board of Patent Appeals and Interferences  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In the Examiner's Answer, the Examiner makes comments which require response by Appellants. The Examiner's Answer is based on picking and choosing statements made in the prior art without considering the teachings of the prior art as a whole.

At the last paragraph of page 3 of the Examiner's Answer, the Examiner states:

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"Lang et al. do not specifically teach each of the claimed ingredients with sufficient specificity to anticipate the claims, however, it would have been obvious to one of ordinary skill in the art to combine the non-enzymatic protein in combination with a zeolite, disintegrating agent and surfactant to comprise a bar composition because Lang et al teach each of the components for the purpose of establishing a bar composition in their requisite proportions. Accordingly, absent a showing to the contrary, one of ordinary skill in the art would have been motivated to combine the components of Lang et al. for their intended purpose."

In the statement, the Examiner has failed to consider the utility of the bar which could be produced according to the teachings of Lang et al. as selected by the Examiner. In addition, the Examiner has failed to point out why one skilled in the art would select the particular combination of components without Appellants' specification as a guide.

At col. 2, lines 38-67, Lang et al. discloses a large list of components which are suitable as additives. Among the suitable additives are included celluloses and derivatives thereof, such as carboxymethylcellulose, methylcellulose, hydroxyethylcellulose. However, Lang et al. also teaches that the additives may be completely soluble in water although they are preferably hydrophobic in each case it is a prerequisite that the additives are not hydroscopic. The list of the possible additives include materials such as fatty acids, fatty alcohols, high molecular weight weight polyethylene glycols, waxes, magnesium oxide, chalk, kaolin, magnesium silicate, siliceous chalk, kieselguhr, alkaline metal sulfates and the like. Preferred additives include synthetic, finely divided, highly dispersed silica. The major portions of the additives are not considered as disintegrators in the art. In particular, the completely

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water soluble and the preferred hydrophobic additives would not in any way be considered a disintegrator. The materials which the Examiner considers to be disintegrators would not be included among the additives if the treated, secondary alkyl sulfonate was intended to be utilized to form a bar soap or a toilet block.

The presence of a disintegrator in a bar soap or toilet block would make the article completely useless for its intended purpose. That is, one skilled in the art would not make a washing bar or a toilet block which when contacted with water would rapidly disintegrate. These articles are generally considered multi-use or articles which remain intact after long periods of contact with water. Appellants submit that the Examiner's statement that it would be obvious to include the disintegrator in a bar soap or toilet block is not supported in the teachings of Lang et al. The Examiner has picked and chosen various statements without considering the ultimate utility of the particular article being considered.

At page 4, beginning in response to argument, the Examiner states:

"Appellant argues that there is no teaching of a disintegrator or suggestion to provide rapid disintegration in Lang et al.

The examiner respectfully disagrees and directs applicant's attention to column 8, line 41 and col. 2, lines 50-53, wherein Lang et al teaches the use of suspension agents and solubilizers which include ingredients such as gum, starches, carboxymethyl cellulose, polyvinyl pyrrolidone and therefore reads on appellant's specification which teaches that disintegrators include starches, natural starch derivative such as cellulosed and carboxymethyl starch, and polyvinyl pyrrolidone (see page 11, lines 5-15 of applicant's specification). Therefore, in view appellants' specification, Lang et al. specifically suggest many of the disintegrators of the claimed invention."

Lang et al. disclose coating the secondary alkyl sulfonates (SAS) with many substances to prevent sticking together of the particles of the SAS. Appellants submit that not all of the possible additives (coating materials) are useful for all of the uses disclosed in Lang et al. Appellants submit that all of the additives disclosed in Lang et al. would be useful to coat the SAS particles if the particles were to be included in a particulate surfactant composition. However, not all of the additives disclosed in Lang et al. would be suitable for utilization when the coated SAS surfactant was to be included in articles such as bar soaps and toilet blocks which are intended to maintain their bar or block configuration after contact with water. Any use of a disintegrator in such an article would make the article useless for its intended purpose.

At col. 8, line 41, Lang et al. teach that certain auxiliaries can be used in the cleaning product composition which include anticorrosion agents, suspension agents, colorants, fillers.... Appellants submit that this statement bears no relation to the composition of the present invention or would teach one skilled in the art to select the required components in the composition of the present invention from a long list of components disclosed in Lang et al. as useful in detergent formulations.

At col. 2, lines 50-53, Lang et al. disclose that the additives (coating components for the SAS) include celluloses and derivatives thereof, such as carboxymethylcellulose, methylcellulose, hydroxyethylcellulose. The entire list of possible additives include materials which have no relation to a disintegrator. Although Lang et al. suggests that the additives useful as the coating for the SAS particle and disintegrators as used in the

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present invention, Appellants submit that the disintegrator components would not be useful in the bar or block components of Lang et al. Again, Appellants respectfully submit that the Examiner is picking and choosing minor statements in Lang et al. without considering the overall teachings of the reference. Appellants submit that the Examiner has not pointed to a single statement in Lang et al. that disintegrators would be useful in the composition. Appellants submit that any of the materials which would be considered as disintegrators are intended for uses such as the particulate detergent compositions suggested in Lang et al. which do not require a disintegrator.

At page 5, first full paragraph, the Examiner states:

"Appellants argues that Lang et al utilizes carboxymethyl cellulose, methyl cellulose and hydroxymethyl cellulose as additives and that "these compositions are noted in the present application as useful disintegrator", they are not utilized as disintegrators in Lang et al. but used to provide a coating.

The examiner respectfully disagrees and contends that Lang et al. do not describe the function of the additive as a coating ingredient and appellant does not provide any reference (column or line number) to said additive being used as a coating ingredient. Therefore, the function of the additives is not established therein invalidates appellants' arguments, which are unsupported by factual evidence. Furthermore, Lang et al. do teach that said additives are mixed with the secondary alkane sulfonates (see claim 1) and that said additives are water-soluble, which by definition means that the additives would undergo change as the composition is dissolved in water and therefore reads on a disintegrator (col. 2, lines 35-44)."

Appellants invite the Honorable Board of Patent Appeals and Interferences' attention to the method of preparing the coated SAS claimed in claim 1 (a) which claims a product obtained by (a) grinding coarse secondary alkanesulfonate followed by mixing

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with said additive. Appellants submit that the only possible outcome of such a process would be SAS particles coated with the additive if the additive was intended to prevent particles of the SAS from agglomerating due to the hydroscopicity of the particles during storage.

Appellants also invite the Honorable Board of Patent Appeals and Interferences' attention to Lang et al. (col. 2, lines 31-34) which teaches:

"In a third variant, it is also possible firstly to grind the coarsely divided solid SAS, preferably with cooling, as described above, and then to mix the ground SAS with the additive."

Again, Appellants submit that the only possible outcome of such a process variant would be to coat the SAS particles with the additive or coat the additive with the SAS particles. However, coating the additive with the SAS particles would not provide a composition which would prevent agglomeration of the coated additive of particles by the hydroscopic SAS outer surface which would absorb water and contact each other to agglomerate. Appellants submit that the Examiner has not considered the teachings of Lang et al. in relation to the nature of the product of the process disclosed. Again, the Examiner is picking and choosing statements which suit his position without any consideration of the overall teachings of the reference.

At page 5 in the middle of the second paragraph, the Examiner:

"Furthermore, Lang et al. do teach that said additives are mixed with the secondary alkane sulfonate (see claim 1) and that said additives are water-soluble, which by definition means that the additives would undergo change as the composition is dissolved in water and therefore reads on a disintegrator (col. 2, lines 35-44)."

Appellants respectfully submit that the Examiner, in the above statement, does not realize the method by which a disintegrator achieves its disintegration effect. Appellants submit that water soluble materials are not useful disintegrators. Appellants' understanding of the nature of a disintegrator is that it is required to absorb water and expand to provide a large internal force which shatters the particle to be disintegrated. To Appellants knowledge, all of the useful disintegrators disintegrate by forming an internal force by an expansion mechanism to provide rapid shattering of the particle being disintegrated. Appellants submit that a soluble material could not generate the substantial forces required to shatter the particle and dissolution of the water soluble component would take substantial time period in view of the requirement that the water penetrate the particle to the water-soluble substance in a sufficient quantity to dissolve the water-soluble material. Appellants respectfully submit that the Examiner is mistaken in his understanding of the nature of a disintegrator.

At page 6, beginning at the penultimate paragraph, the Examiner states:

"Appellant argues that Lang et al. teach protein hydrolyzates useful in the practice of the invention are nonionic surfactants and the protein hydrolyzates of the present invention are not surfactants.

The examiner respectfully disagrees and directs appellant to their specification that states, "Although protein hydrolyzates are not surfactants in the true sense insofar they lack a hydrophobic residue, they are often used for formulating surface-active compositions by virtue of their dispersing properties." (column 9, line 13-15). Therefore, it is clearly established that appellant's specification does not exclude protein hydrolyzates from being surfactants, but merely describes the function of said protein hydrolyzates."

The Examiner's statement in regard to the teachings of the present application are substantially accurate in regard to the non-surfactant nature of the hydrolyzates. The fact that they are often used for formulating surface-active composition by virtue of their dispersing properties, bears no relation to any activity as a surfactant (substantially lowering the surface tension of water when present in small concentrations). True dispersing agents are polymeric electrolytes (condensed sodium silicates, polyphosphates, lignin derivatives and the like. In addition, proteins or carbohydrate polymers which act by coating the surfaces of the dispersed particles, thus preventing them from coalescing are sometimes known as protective colloids. Appellants submit that the protein hydrolyzates useful in the practice of the present invention can act as dispersants without providing what would be considered conventional lowering of the surface tension of water when present in small amounts. Appellants submit that the Examiner is misrepresenting the nature of dispersants which can include the protein hydrolyzates. Appellants respectfully submit that the nature of dispersants and emulsifiers is well known and understood in the art and it is common knowledge that many dispersants are not surfactants (substantially reduce the surface tension of water when present in small amounts).

Appellants herewith submit copies of page 301, 435, and 461 from Hawley's Condensed Chemical Dictionary, 12th Edition, which disclose the nature of suspensions, emulsions, dispersions and dispersing agents. Appellants submit that the Examiner is incorrect in his understanding that dispersing agents must be surfactants.



Appellants submit that the Examiner has failed to consider the unexpected softening properties of the protein hydrolysates which is the motivation for including protein hydrolosates in the composition of the invention. The softening effect was not known or recognized in the prior art and particularly Lang et al. The unexpected softening properties overcome any *prima facie* case of obviousness which the Examiner may have raised.

Appellants respectfully submit that the Examiner has not provided any reason why one skilled in the art would pick and choose from the multitude of the possible ingredients in a detergent composition to arrive at a detergent tablet comprising:

- (a) a surfactant component selected from a group consisting of anionic surfactants, nonionic surfactants, amphoteric surfactants and mixtures thereof;
- (b) A non-enzymatic protein and/or derivative thereof in an amount of from 0.1% to 10% by weight, based on the weight of the tablet;
- (c) a zeolite; and
- (d) a disintegrating agent.

Appellants respectfully submit that all of the components in the tablet of the present invention are known materials, however, a tablet containing the protein hydrolyzate was not known to provide the improved softness to the washed laundry which effect is unexpected.

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Appellants respectfully request favorable consideration and reversal of the Examiner.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Daniel S. Ortiz", is written over a horizontal line.

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Enclosure: Hawley's Condensed Chemical Dictionary, 12th Edition, pgs. 301, 435 & 461

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characteristic of matter when one or more of its dimensions lie in the range between 1 millimicron (nanometer) and 1 micron (micrometer). It thus includes not only finely divided particles but also films, fibers, foams, pores, and surface irregularities. It is dimension that is characteristic, rather than the nature of the material. Colloidal particles may be gaseous, liquid, or solid, and occur in various types of suspensions (imprecisely called solutions), e.g., solid-gas (aerosol), solid-solid, liquid-liquid (emulsion), gas-liquid (foam). In this size range, the surface area of the particle is so large with respect to its volume that unusual phenomena occur, e.g., the particles do not settle out of the suspension by gravity and are small enough to pass through filter membranes. Macromolecules (proteins and other high polymers) are at the lower limit of this range; the upper limit is usually taken to be the point at which the particles can be resolved in an optical microscope. The first specific observations were made by Thomas Graham approximately 1860, and were extended by Ostwald, Hatchek, and Freundlich. Though the term is often used synonymously with surface chemistry, in a strict sense it is limited to the size range noted in at least one dimension, whereas surface chemistry is not. Natural colloid systems include rubber latex, milk, blood, egg white, etc. See also surface chemistry; colloid, protective; emulsion.

**colloid mill.** See homogenization.

**colloid, protective.** A hydrophilic high polymer whose particles (molecules) are of colloidal size, such as protein or gum. It may be either naturally present in such systems as milk and rubber latex, or intentionally added to mixes to stop coagulation or coalescence of the particles of fat or other dispersed material. Protective colloids are also called stabilizing, suspending, or thickening agents; they also act as emulsifiers. Examples are (1) hydrocarbon particles of latex, which are covered with a layer of protein that keeps them from cohering as a result of the impact due to their Brownian motion; (2) gelatin, sodium alginate, or gum arabic, which are added to ice cream to inhibit formation of ice particles, and to confectionery and other food products to obtain a smooth, creamy texture. They are readily adsorbed by the suspended particles and reinforce the protective effect of proteins that may be naturally present.

See also thickening agent; gum, natural; gelatin.

**"Colloisol" [BASF].** TM for a series of vat dyes for dyeing and printing textiles of cellulosic fibers.

**cologne.** (toilet water). A scented, alcohol-based liquid used as a perfume, after-shave lotion, or deodorant. Combustible.

**Cologne brown.** See Van Dyke brown.

**colophony.** A rosin residue which remains after the volatiles have been removed by distillation of crude turpentine from any of the *Pinus* species.

**colorant.** Any substance that imparts color to another material or mixture. Colorants are either dyes or pigments, and may either be (1) naturally present in a material (chlorophyll in vegetation), (2) admixed with it mechanically (dry pigments in paints), or (3) applied to it in a solution (organic dyes to fibers).

*Note:* There is no generally accepted distinction between dyes and pigments. Some have proposed one on the basis of solubility, or of physical form and method of application. Most pigments, so called, are insoluble, inorganic powders, the coloring effect being a result of their dispersion in a solid or liquid medium. Most dyes, on the other hand, are soluble synthetic organic products which are chemically bound to and actually become part of the applied material. Organic dyes are usually brighter and more varied than pigments, but tend to be less stable to heat, sunlight, and chemical effects. The term colorant applies to black and white as well as to actual colors. Instruments for measuring, comparing, and matching the hue, tone, and depth of colors are called colorimeters.

See also dye, pigment, colorimetry, food color, FD&C color.

**"Colorex" [Stauffer].** TM for titanium trichloride in aqueous solution with zinc chloride: Dark violet to black liquid.

Use: Powerful reducing agent, dye stripper for textiles.

**colorimeter.** An analytical device used to measure the comparative intensity of color in solutions by comparison with standard solutions. See: Photoelectric colorimeter.

**colorimetric analysis.** Analysis based on the law that intensity of color of certain solutions is proportional to the amount of substance in the solution.

**colorimetric purity.** The ratio of luminance of spectrally pure light that must be mixed with reference achromatic (white) light to produce a color match for the specimen light.

**disodium orthophosphate.** See sodium phosphate, dibasic.

**disodiumphenyl phosphate.**  $C_6H_5Na_2PO_4$ .  
Properties: White powder, soluble in water, insoluble in acetone and ether.  
Use: Reagent for milk pasteurization.

**disodium phosphate.** See sodium phosphate, dibasic.

**disodium pyrophosphate.** See sodium pyrophosphate, acid.

**disodium tartrate.** See sodium tartrate.

**disperse dye.** See dye, disperse.

**disperse phase.** See phase (2); colloid chemistry.

**dispersing agent.** A surface-active agent added to a suspending medium to promote uniform and maximum separation of extremely fine solid particles, often of colloidal size. True dispersing agents are polymeric electrolytes (condensed sodium silicates, polyphosphates, lignin derivatives); in non-aqueous media sterols, lecithin and fatty acids are effective.

Use: Wet grinding of pigments and sulfur; preparation of ceramic glazes, oil-well drilling muds, insecticidal mixtures, carbon black in rubber, and water-insoluble dyes.

See also emulsion; detergent.

**dispersion.** (1) A two-phase system where one phase consists of finely divided particles (often in the colloidal size range) distributed throughout a bulk substance, the particles being the disperse or internal phase and the bulk substance the continuous or external phase. Under natural conditions, the distribution is seldom uniform; but under controlled conditions, the uniformity can be increased by addition of wetting or dispersing agents (surfactants) such as a fatty acid. The various possible systems are: gas/liquid (foam), solid/gas (aerosol), gas/solid (foamed plastic), liquid/gas (fog), liquid/liquid (emulsions), solid/liquid (paint), and solid/solid (carbon black in rubber). Some types, such as milk and rubber latex, are stabilized by a protective colloid which prevents agglomeration of the dispersed particles by an adherent coating. Solid-in-liquid colloidal dispersions (loosely called solutions) can be precipitated by adding electrolytes which neutralize the electrical charges on the particles. Larger particles will gradually coalesce and either rise to the top or settle out, depending upon their specific gravity.

See also suspension, colloid chemistry.

(2) In the field of optics, dispersion denotes the retardation of a light ray, usually resulting in a

change of direction as it passes into or out of a substance, to an extent depending on the frequency. Dispersion is a critically important property of optical glass.

See also refraction.

**"Dispersite" [Uniroyal].** TM for water dispersions of natural, synthetic, and reclaimed rubbers and resins.

Use: Adhesives for textiles, paper, shoes, leather, tapes; coatings for metal, paper, fabrics, carpets; protective (stripable) for saturating paper, felt, book covers, tape, jute pads; for dipping tire cords. Can be applied by spraying, spreading, impregnation, saturation.

**"Disperson" [Witco].** TM for wettable grades of zinc, calcium, and other metallic stearates.

Use: Where easy dispersion in water is desired.

**"Disperson OS" [ICI].** TM for an oil-soluble emulsifying agent comprised of an 8% solution of a polyethenoxy compound in isopropanol. Designed especially for dispersion of oil spills in seawater. Claimed to be biodegradable and to have low toxicity for fish and other marine organisms. Amount needed said to be from 20-25% of the oil volume.

**displacement.** Chemical change in which one element enters a compound in place of another, the latter being set free.

**displacement series.** See activity series.

**disposal, waste.** See waste control, chemical waste, radioactive waste.

**disproportionation.** A chemical reaction in which a single compound serves as both oxidizing and reducing agent and is thereby converted into a more oxidized and a more reduced derivative. Thus, a hypochlorite upon appropriate heating yields a chlorate and a chloride; and an ethyl radical formed as an intermediate is converted into ethane and ethylene.

See also transalkylation.

**dissociation.** The process by which a chemical combination breaks up into simpler constituents as a result of either (1) added energy, as in the case of gaseous molecules dissociated by heat, or (2) the effect of a solvent on a dissolved polar compound (electrolytic dissociation), e.g., water on hydrogen chloride. It may occur in the gaseous, solid, or liquid state or in solution. All electrolytes dissociate to a greater or less extent in polar solvents. The degree of dissociation can be used to determine the equilibrium constant

from beryllium aluminum silicate containing a small amount of chromium.

Use: Lasers, masers, semiconductors.

**emery.** See corundum, abrasive.

**emetine.** (cephaeline methyl ether; 6',7',10,11-tetramethoxyemetan). CAS: 483-18-1.

$C_{29}H_{40}O_4N_2$ . An alkaloid from ipecac.

Properties: White powder, mp 74C, very bitter taste, darkens on exposure to light, soluble in alcohol and ether, slightly soluble in water.

Derivation: By extraction from root of *Cephalis ipecacuanha* (ipecac) or synthetically.

Hazard: Toxic by ingestion.

Use: Medicine (antiamebic).

**emission spectroscopy.** Study of the composition of substances and identification of elements by observation of the wavelengths of radiation they emit as they return to a normal state after excitation by an external energy source. When atoms or molecules are excited by energy input from an arc, spark, or flame, they respond in a characteristic manner; their identity and composition are signaled by the wavelengths of incident light they emit. The spectra of elements are in the form of lines of distinctive color, such as the yellow sodium D line of sodium; those of molecules are groups of lines called bands. The number of lines present in an emission spectrum depends on the number and position of the outermost electrons and the degree of excitation of the atoms. The first application of emission spectra was identification of sodium in the solar spectrum (1814).

See also spectroscopy.

**emmenagogue.** A drug used to induce menstruation.

**Emmert reaction.** Formation of 2-pyridyldialkylcarbinols by condensation of ketones with pyridine or its homologs in the presence of aluminum or magnesium amalgam.

**emodin.** (frangula emodin; frangulic acid; 1,3,8-trihydroxy-6-methylantraquinone).

CAS: 518-82-1.  $C_{14}H_4O_2(OH)_3CH_3$ .

Occurrence: Either free, or combined with a sugar in a glucoside, in rhubarb, cascara sagrada, and other plants. A synthetic product is also available.

Properties: Orange crystals, mp 256C, soluble in alcohol, insoluble in water.

Use: Medicine (cathartic).

**empirical formula.** See formula, chemical.

**EMTS.** Abbreviation for ethylmercury-p-toluene sulfonanilide.

**emulsifier.** A surface-active agent.

See emulsion.

**emulsifying oil.** See soluble oil.

**"Emulsilac-S" [Humko].** (sodium stearyl lactylate). TM for emulsifier, dough conditioner-strengtheners, and whipping agent.

Use: For baked goods, puddings, dips, cheese substitutes, sauces, whipped toppings, and fillings.

**emulsion.** (synaptase; amygdalase;  $\beta$ -glucosidase). An enzyme catalyzing the production of glucose from  $\beta$ -glucosides.

Properties: White powder, odorless and tasteless, capable of hydrolyzing glucosides such as amygdalin to glucose and the other component substances. Soluble in water, insoluble in ether and alcohol.

Source: Sweet almonds.

Derivation: By extracting an emulsion of almonds with ether filtering the clear solution and precipitating the emulsion with alcohol.

**emulsion.** A stable mixture of two or more immiscible liquids held in suspension by small percentages of substances called emulsifiers. These are of two types: (1) Proteins or carbohydrate polymers which act by coating the surfaces of the dispersed fat or oil particles, thus preventing them from coalescing; these are sometimes called protective colloids. (2) Long-chain alcohols and fatty acids, which are able to reduce the surface tension at the interface of the suspended particles because of the solubility properties of their molecules. Soaps behave in this manner; they exert cleaning action by emulsifying the oily components of soils. All such substances, both natural and synthetic, are known collectively as detergents.

Polymerization reactions are often carried out in emulsion form; a wide variety of food and industrial products are emulsions of one kind or another, e.g., floor and glass waxes, drugs, paints, shortenings, textile and leather dressings, etc.

All emulsions consist of a continuous phase and a disperse phase: in an oil-in-water (o/w) emulsion, such as milk, water is the continuous phase and butterfat (oil) the disperse phase; in a water-in-oil (w/o) emulsion, such as butter, free fat (from crushed fat globules) is the continuous phase and unbroken fat globules plus water droplets are the disperse phase.

See also colloid, protective; phase (2); detergent; surface-active agent; wetting agent.

**emulsion breaker.** See demulsification.

**emulsion paint.** See paint, emulsion.